

1. A laser system comprising:

a control path and a reference path;

a control filter for stabilizing a laser beam, said control filter having a first periodicity, said control filter being located in said control path; and

a reference filter for determining an operating point cycle of said control filter, said reference filter having a second periodicity greater than said first periodicity, said reference filter being located in said reference path.

10 2. The laser system of claim 1, further comprising a device for determining the wavelength characteristics of light transmitted along said reference path and said control path.

3. The laser system of claim 2, further comprising a controller for comparing said wavelength characteristics.

1. 15 4. The laser system of claim 3, further comprising a laser medium for generating said laser beam, and a servo system connected to said controller for controlling said laser medium.

5. The system of claim 1, wherein said filters include an etalon.

6. The system of claim 1, wherein said reference filter has a lower selectivity than said control filter.

7. A wavelength division multiplex communication system,

1. 5 comprising:

a control path and a reference path;

a control filter for stabilizing a laser beam, said control filter having a first periodicity, said control filter being located in said control path; and

10 a reference filter for determining an operating point cycle of said control filter, said reference filter having a second periodicity greater than said first periodicity, said reference filter being located in said reference path; and

an optical waveguide for transmitting said laser beam.

1. 15 8. The system of claim 7, wherein said waveguide includes an optical fiber.

9. The system of claim 8, further comprising a device for generating said laser beam, and wherein said control filter is located between said device and said reference filter.

10. A laser system comprising:

1. 5 a resonator for generating a laser beam;

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a control filter for stabilizing said laser beam, said control filter being located in a control path, and said control filter having a first periodicity; and

10 a reference filter for determining an operating point cycle of said control filter, said reference filter having a second periodicity greater than said first periodicity.

11. The system of claim 10, further comprising a wavelength monitor for generating an output, said monitor being located in said reference path.

1. 15 12. The system of claim 11, further comprising a laser medium located in said resonator, and a controller for responding to said output of said monitor to control said laser medium.

13. The system of claim 11, further comprising a laser medium located in said resonator, and a servo system operatively connected to a controller for controlling said laser medium.

1. 5 14. The system of claim 10, wherein said reference filter includes an etalon.

15. The system of claim 10, wherein said reference filter has a lower selectivity than said control filter.

16. The system of claim 10, further comprising a beam splitter for transmitting a portion of said laser beam along said control path.

10 17. The device of claim 16, further comprising a beam splitter for transmitting a portion of said laser beam along a reference path.

18. The device of claim 16, wherein said beam splitter is located between said resonator and said reference filter.

19. A method of stabilizing the wavelength of a laser beam comprising the acts of:

transmitting light through a control filter and a reference filter, wherein said control filter has a first periodicity and said reference filter has
1. 5 a second periodicity greater than said first periodicity;

measuring the wavelength characteristics of light on a reference path associated with said reference filter;

determining an operating point cycle of said control filter based on said measured wavelength characteristics; and

10 controlling a laser medium within said operating point cycle.

20. The method of claim 19, wherein said reference filter has a lower selectivity than said control filter.

21. The method of claim 20, further comprising the act of transmitting said beam in a wavelength division multiplex communication system.